Morgan
Advanced Materials

**Morgan Advanced Materials (Group)**

Established in 1856
A global advanced materials company
Headquartered in Windsor, United Kingdom
Listed on the London Stock Exchange

**Morgan AM&T(Shanghai) Co.,Ltd.**

Morgan AM&T(Shanghai) Co.,Ltd.
Established in 1992
Joint venture between
Morgan Advanced Materials plc.
and Shanghai Prime Machinery Co., Ltd.

**What differentiates us?**

Advanced materials science and processing capabilities
Extensive applications engineering experience
Consistent and reliable performance
A strong history of innovation and reinvention
A truly global footprint

You can contact us or our authorized distributor through the following channels:

**SALES/CUSTOMER SERVICE:**
021-64343350 Ext 273
chinasales@morganplc.com

**CHANNEL POLICY:**
021-64343350 Ext 260
ecchina.channel@morganplc.com

**FEEDBACK ON ANTI-COUNTERFEITING ISSUES:**
ecchina.antifake@morganplc.com

**OTHER SUGGESTIONS:**
ecchina.suggestions@morganplc.com

**OFFICIAL WECHAT ACCOUNT:**
Morgan1856

**ONLINE FLAGSHIP STORE:**
https://morgancarbon.1688.com

Morgan AM&T(Shanghai) Co., Ltd.
No. 4250, Longwu Road, Minhang District, Shanghai, China



www.morganelectricalmaterials.com
www.morganadvancedmaterials.com

Morgan
Advanced Materials

# Professional Reliability Solutions
## in the Field of Rail Transit

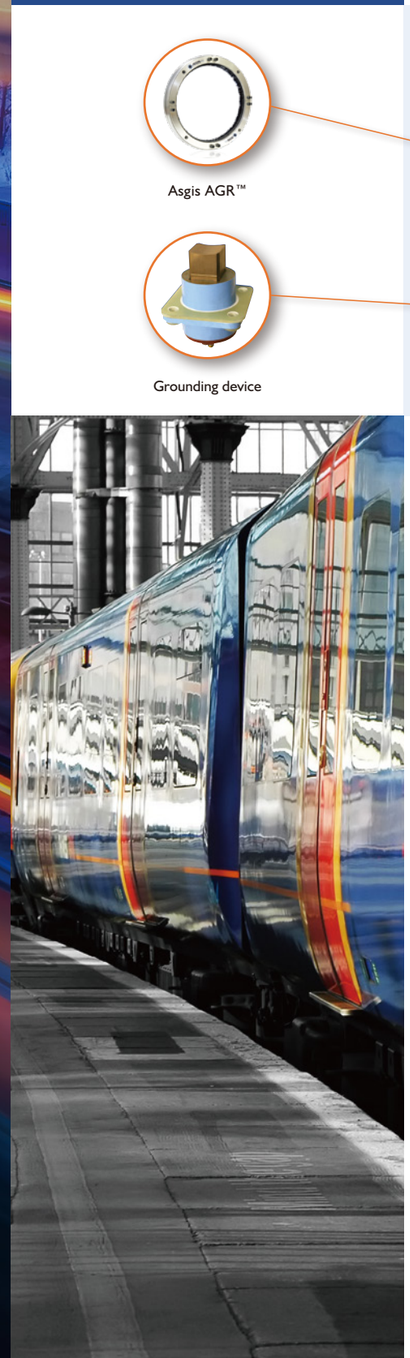
ELECTRICAL CARBON

Morgan
Advanced Materials

# Professional reliability solutions Responding to the challenges and needs of various operating environments

## Contents





Morgan provides numerous products and solutions for rail transit applications



Asgis AGR™



Grounding device

Wheel flange lubrication

Third-rail collector shoe

Traction carbon brush and brush holder

Carbon pantograph strip

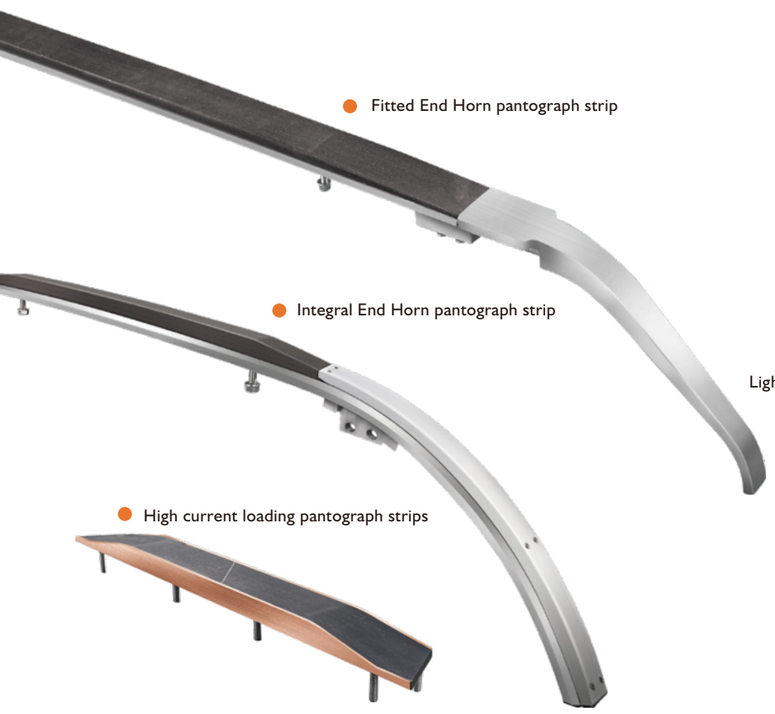
Coupler contact

### The main advantages of Morgan rail transit power collection products and the benefits to customers include:

- The life of pantograph strip is longer, which can achieve lower operating and maintenance costs as well as replacement frequency
- The catenary protection is better, which can significantly reduce the maintenance cost of catenary power supply system
- The product is lighter, so as to achieve better dynamic following performance of pantograph and catenary
- Rich product portfolio to meet application requirements and address challenges
- Product reliability proven by long-term extensive applications
- Technical and application support from a global team of experts
- One-stop localized production and service system
- Innovative customized overall solutions

## Morgan can provide technical solutions to meet various application requirements in accordance with the needs of customers

- Fitted End Horn pantograph strip
- Integral End Horn pantograph strip



- High current loading pantograph strips



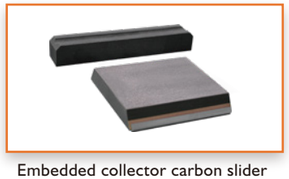
Full-length metalised pantograph strip

Lightweight aluminium-bonded designs pantograph strips

Ice-breaker pantograph strips

Auto drop pantograph strips

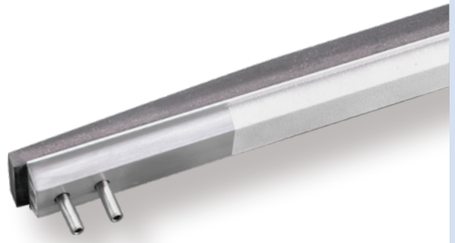
Third-rail collector shoe

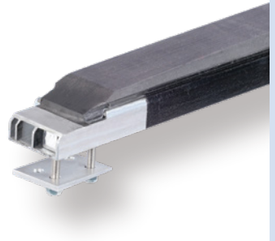


Embedded collector carbon slider

Arc protection pantograph strip

Morgan Advanced Materials





### Auto drop pantograph strips

Many pantographs of high-speed railway systems are equipped with auto-drop system, which can automatically drop the pantograph when the impact is enough to damage the pantograph head, so as to avoid the damage of pantograph and catenary system. The Morgan global expert team has upgraded the dropping system of pantograph strip for many times based on the long-term engineering experience. At present, the auto drop pantograph system of the Morgan carbon contact strip not only has the characteristics of good sealing, long-term stability and reliability, but also can be started in time during impact. It can be customized according to the customer needs, and is widely used in many railway systems worldwide.

### Arc protection pantograph strips

Some existing railway systems have problems such as obvious arcing, burning of pantograph strip carriers, and even degumming due to overheating. In response to harsh working conditions, Morgan has launched arc-proof pantograph strip, and can provide a variety of arc-proof solutions (such as arc-proof coating or covering, special cross-section design, etc.) according to customers' needs. These products have been widely used in customers' systems to effectively reduce the risk of arc-through.

### Lightweight pantograph strips

In response to some customers' strict design requirements for weight, Morgan carries out special lightweight designs. While achieving lightweight, it can still ensure the excellent application performance of materials. Lightweight pantograph strips achieve a balance among various properties to a certain extent, thus better meeting the actual application requirements of customers.

## Ice-breaker pantograph strips

At night with low temperature or in rainy and snowy weather conditions, the contact catenary may freeze, which may interfere the connection between the pantograph and the catenary, thus affecting the normal railway operation. Morgan specifically developed ice-breaker pantograph strips which cleverly use different material characteristics to achieve both high-strength effective ice-breaking and good friction current carrying effects, suitable for the first train in the morning.

## High current pantograph strips

Conventional carbon contact strips may not be able to meet the current carrying requirements of railway systems with particularly high current-carrying density. Carbon contact strips with high current carrying capacity developed by Morgan adopt a copper-clad carbon design, and can also be combined with conventional carbon contact strips to form an integrated solution, thus giving full play to the high current carrying capacity and achieving high comprehensive performance to meet customers' specific application requirements.

## Collector shoes with longer life

By virtue of advanced assembly technology and process as well as different material combination schemes, Morgan's collector shoes have achieved more stable performance and longer life, so they are widely used and accepted by customers.

Morgan
Advanced Materials

## The Morgan rail transit collector products are widely used to help the sustainable development of the city